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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/491,581	01/25/2000	Shigeto Igarashi	2811	8717

7590 12/24/2002

Law Office of David O'Reilly
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EXAMINER
VU, NGOC YEN T

ART UNIT	PAPER NUMBER
2612	10

DATE MAILED: 12/24/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)
09/491,581	Shigeto IGARASHI
Examiner	**Art Unit**
Ngoc-Yen Vu	2612

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *Oct 18, 2002*.

2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *23-27* is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *23-27* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

Response to Amendment

1. The amendments, filed on 10/18/2002, have been entered and made of record. Claims 23-27 are pending.

Response to Arguments

2. Applicant's arguments with respect to claims 17-22, filed on 10/18/2002, have been considered but are moot in view of the new ground(s) of rejection. This Office action is now made final.

Claim Objections

3. Claims 23-27 are objected to because of the following informalities:

Claims 23-27: the term "auxiliary amplifying circuit" and "auxiliary amplifier" have been used interchangeably in claims 23-27. It is suggested that a common term is used in claims 23-27 for the purpose of consistency.

Claim 24: line 2, change "Claim 24" to --Claim ***23***--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 23-24 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inuiya et al. (US #5,751,348) in view of Thommen (US #3,555,181).

Regarding claim **23**, Inuiya '348 teaches a signal amplifying circuit system for a CCD camera the improvement comprising:

an automatic gain control auxiliary amplifying circuit (Fig. 4, gain setter 110) having a low amplification degree (-3 dB; see col. 4 lines 34-44);

a separate auxiliary automatic gain control auxiliary amplifying circuit (Fig. 4, gain setter 106 and gain controller 108) having a high amplification degree (col. 4 lines 34-44);

a detector (Figs. 1 & 4, detector circuit 38) for detecting a change of object illumination (col. 3 lines 21-27; col. 5 lines 11-46); and

a switch activated by said detector for switching between said auxiliary amplifying circuit (110) and said separated auxiliary amplifying circuit (106/108), whereby said CCD camera is switched to said separate auxiliary amplifying circuit (106/108) when ambient illumination of said subject is very low (col. 5 lines 38-46).

Claim 23 differs from Inuiya in that the claim further requires the automatic gain control auxiliary amplifying circuit (110) having a low amplification degree and a high S/N ratio, and the separate automatic gain control auxiliary amplifying circuit (106/108) having a high amplification degree and a low S/N ratio which is less than a minimum S/N ratio of said auxiliary amplifying circuit with the high S/N ratio. However, the limitations are well known in the art as taught in Thommen. In the same field of endeavor, Thommen '181 teaches an automatic video level

control employing iris and amplifier gain adjustments (see Fig. 1; col. 2 line 68 - col. 4 line 38). Thommen further teaches that decreasing the gain of an automatic gain control circuit (17) will improve the signal to noise ratio and picture quality (see col. 3 line 41 - col. 4 line 39; col. 4 line 40 - col. 5 line 20). In light of the teaching from Thommen, it would have been obvious to one of ordinary skill in the art to recognize that the lowering the amplification degree of the AGC circuit 36 taught in Inuiya will improve the signal to noise ratio and the picture quality. It is noted that Inuiya teaches that the gain of the auxiliary amplifying circuit (110) is set at -3 dB while the gain of the separate auxiliary amplifying circuit (106/108) is set at 0 dB plus the gain of the gain controller (108) (see col. 4 lines 35-44). It would have been obvious to one of ordinary skill in the art to recognize that the S/N ratio of the auxiliary amplifying circuit (106/108) is less than a minimum S/N ratio of the auxiliary amplifying circuit (110).

As to claim **24**, Inuiya teaches that the auxiliary amplifying circuit (110) and the separate auxiliary amplifying circuit (06/108) are incorporated into an existing AGC amplifier in said CCD amplifying and processing circuit (Figs. 1 & 4, AGC 36).

As to claim **27**, the claim differs from Inuiya and Thommen in that it further requires the detector activates the switch at light levels below about 0.02 lux. Although Inuiya and Thommen do not specifically teach light levels below about 0.02 lux, both Inuiya and Thommen teach increasing gain applied to the AGC circuit under very low illumination levels (Inuiya, col. 5, lines 34-44; Thommen, col. 4 lines 63-73). Therefore, it would have been obvious to one of ordinary skill in the art to modify the signal amplifying circuit system taught in Inuiya and Thommen by

activating the switch at light levels below about 0.02 lux so as to improve picture quality in underexposure condition.

5. Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inuiya '348 in view of Thommen '181, as applied to claims 23-24 above, and further in view of Bendell et al. (US #4,587,563).

As to claims **25** and **26**, the claims differ from Inuiya and Thommen in that they require that the signal to noise ratio is kept at a minimum which is greater than about 20 dB or at about 40 dB. However, it is well known in the art that at room temperature and low scene illumination levels, the signal to noise ratio of a CCD imager degrades by about 18 dB to about 47 dB, as taught in Bendell et al. (See col. 4 lines 24-45). In light of the teaching from Bendell, it would have been obvious to one of ordinary skill in the art to modify the signal amplifying circuit system taught in Inuiya and Thommen by keeping the signal to noise ratio of the auxiliary amplifying circuit at a minimum greater than 20 dB or 40 dB so as to allow the CCD camera to operate under satisfactory signals to noise performance as the illumination varies.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. **Any response to this office action should be mailed to:**

Box AF

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314, (for formal communications intended for entry)

(for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA., Sixth Floor (Receptionist).

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Ngoc-Yen Vu** whose telephone number is (703) 305-4946. The examiner can normally be reached on Mon - Fri from 8 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Wendy Garber**, can be reached on (703) 305-4929.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the customer service office whose telephone number is (703) 306-0377.

NYV
12/19/2002

NGOC-YEN VU
PRIMARY EXAMINER
Group Art Unit 2612